



Quad Charts
PAP 01 through 17
November 9, 2010

Program Management Office

Status of PAP01: Role of IP in the Smart Grid

Updated November 9, 2010.

A#	Current Activities and Accomplishments	S	D#	Deliverables				
A8	D2 handoff to IETF SSO	✓	D1	Requirements for different Smart Grid applications				
A9	CSWG & SGAC reviews complete	🟢	D2	Identify Core set of IP protocols				
I#	Issues, Concerns & Help Needed	S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
I7	Network management, QoS issues should be addressed by SGIP	✓	TPMO1	PAP Initiation	2009-09	2009-09	SGIP	
I8	CSWG to work with IETF on cyber review of older standards	✓	TPMO2	PAP Charter Developed	2009-10	2009-10	SGIP	
		✓	TPMO3	Form Initial Team	2009-11	2009-11	SGIP	
		✓	TPMO4	Develop List of Deliverables and Tasks with Assignments	2009-11	2009-11	SGIP	
		✓	TPMO5	SSO Identified	2009-11	2009-11	Open SG-net IETF	D1, D2
		✓	TPMO6	Development of Requirements By PAPWG	2010-10	2010-10	PAP01	D1, D2
		✓	TPMO7	Requirements Handoff to SSO	2010-11	2010-11	IETF - Fred Baker	D2
		🟢	TPMO8	Standards Handback to PAPWG from SSO	2010-11		IETF - Fred Baker	D2
		🟢	TPMO9	SSO Results submitted to GB by PAP after completing analysis	2010-11		SGIP /PAP01	D2
		🟢	TPM10	PAP Complete	2010-11		SGIP /PAP01	D2
S	T#	PAP Work Tasks			Due	Actual	Resp	D#
✓	T1	Develop a set of requirements for different Smart Grid applications			Dec 2009	Dec 2009	Open SG-net	D1
🟢	T2	Identify a core Protocol Suite for IP-based Smart Grid			Dec 2010		IETF	D2
✓	T3	Develop application specific			Jul	Jul	Open	D1



	protocol requirements	2010	2010	SG-net	
✓	T4 Meet at OpenSG on July 22 to develop action plan	Jul 2010	Jul 2010	PAP	

Status	Schedule	Deliverables	Resources
January 2010			
February 2010			
March 2010			
April 2010			
May 2010			
June 2010			
July 2010			
August 2010			
Sep 2010			
Oct 2010			

Status of PAP02: Wireless Communications for the Smart Grid (6.1.5)

Updated October 15 , 2010.

A#	Current Activities and Accomplishments	S	D#	Deliverable
A6	Version 0.6 of Wireless Guidelines out for review, comments due Oct 29, 2010	✓	D1	Application Communication Requirements Matrix Template
A7	Investigation into security parameters to account for into section six evaluations	✓	D2	Application Communication Requirements Matrix
		✓	D3	Wireless Capability Matrix Template
		✓	D4	Wireless Capability Matrix
		⚪	D5	Wireless Guidelines

I#	Issues, Concerns & Help Needed	S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
I2	Call for input to Task 6 to conduct the evaluation of wireless technologies based on the application requirements and develop the "findings" section of the Guidelines Document Now looking into the impacts of specific security functions that could be included into analyses of wireless resources as part of section 6	✓	TPMO1	PAP Initiation	2009-08	2009-08	SGIP	All
		✓	TPMO2	PAP Charter Developed	2009-11	2009-11	SGIP	All
		✓	TPMO3	Form Initial Team	2009-11	2009-11	SGIP	All
		✓	TPMO4	Develop List of Deliverables and Tasks with Assignments	2010-01	2010-01	SGIP	All
		✓	TPMO5	SSO Identified	2009-12	2009-12	NIST	D5
		✓	TPMO6	Development of Requirements By PAPWG	2010-05	2010-05	Open SG	D1,D2
		✓	TPMO7	Requirements Handoff to SSO	2010-01	2010-08	SSOs	D3,D4
		⚪	TPMO8	Standards Handback to PAPWG from SSO	2010-07		Assigned	D5
		⚪	TPMO9	SSO Results submitted to GB by PAP after completing analysis	2010-09			D5
			TPM10	PAP Complete				

S	T#	PAP Work Tasks	Due	Actual	Resp	D#
✓	T1	NIST Technical Wireless Evaluation Model Development	Dec 2009	Dec 2009	NIST Technical	D5
✓	T2	SSO Requirements Development by	May 2010	May 2010	Open SG Net	D1,D2

	Open SG Net				
✓	T3 SSO Wireless Capabilities Matrix	Jan 2010	Aug 2010	IEEE 802, 3GPP, 3GPP2, ATIS, TIA	D3,D4
✓	T4 Draft Smart Grid Wireless Guidelines Report	July 2010		PAP 2 and SSO Contributors	D5
●	T5 NIST Reviews and Publishes Wireless Guidelines Report (NISTIR)	Sept 2010		NIST Technical	D5
●	T6 PAP 2 Analyses Report and Submits to SGIP GB	Sept-2010		PAP 2 SSOs and Contributors	D5

Status	Schedule	Deliverables	Resources
January 2010	●	●	●
February 2010	●	●	●
March 2010	●	●	●
April 2010	●	●	●
May 2010	●	●	●
June 2010	●	●	●
July 2010	●	●	●
Aug 2010	●	●	●
Sept 2010	●	●	●

Status of PAP03: Develop Common Specification for Price and Product Definition










Updated November 3, 2010.

A#	Current Activities and Accomplishments	S	D#	Deliverable
A16	The OASIS EMIX TC is addressing SGiP guidance and working on their next draft (first revision posted July 12, see D4)	✓	D1	High level scoping document
		✓	D2	Price use cases and requirements
A17	The OASIS EMIX TC is integrating the public review draft of WS-Calendar in its next publication.	✓	D3	Information model and summary of product characteristics of interest to energy consumers
A18	The OASIS EMIX TC has published a draft UML model and EAP file September 2010	✓	D4	Draft price and product definition specification to others
A19	The OASIS EMIX TC has published a updated draft specification and XML Schemas November 1, 2010. See D4	✓	D5	Requirements Evaluation and Artifacts
A20	The OASIS EMIX TC November 1 2010 working draft addresses requirements from PAP07. See D2 and D4	🟢	D6	Deliverables Evaluation and Artifacts
A21	The OASIS EMIX TC has coordinated with the OASIS WS-Calendar and OASIS Energy Interoperation TCs to use the output of PAPs 4 and 9. Draft linked from D4			

I#	Issues, Concerns & Help Needed	S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
I1	Need focused coordination with DER & PEV PAPs and to include specific tasks in PAP09 and PAP11	✓	TPMO1	PAP Initiation	2009-07	2009-07	PAP03WG	TWiki
I6	Need to setup team(s) to review deliverables once received back from SSOs.	✓	TPMO2	PAP Charter Developed	2009-08	2009-08	PAP03WG	TWiki
I7	Need to see updated artifacts (post comment period) from OASIS (October-ish) and ZigBee (November-ish) for PAP03WG Review	✓	TPMO3	Form Initial Team	2009-08	2009-08	PAP03WG	TWiki
I8	Need to integrate PAP07 requirements. See T13	✓	TPMO4	Develop List of Deliverables and Tasks with Assignments	2009-08	2009-08	PAP03WG	TWiki
		✓	TPMO5	SSO Identified	2009-07	2009-07	PAP03WG	TWiki
		✓	TPMO6	Development of Requirements By PAPWG	2010-07	2010-07	PAP03WG	D5
		✓	TPMO7	Requirements Handoff to SSO	2010-07	2010-07	PAP03WG	D5
		🟢	TPMO8	Standards Handback to PAPWG from SSO	2010-12		OASIS, ZigBee	
		🟢	TPMO9	SSO Results submitted to GB by PAPWG after completing analysis	2011-01		PAP05WG	D6
		🟢	TPM10	PAP Complete	2011-		SGiPGB	N/A

			04			
S	T#	PAP Work Tasks	Due	Actual	Resp	D#
✓	T1	Develop high level scoping document	2009-11	2009-11	NAESB	D1
✓	T2	Develop price and product definition use cases & requirements	2009-11	2010-04	NAESB	D2
✓	T3	Meet and present status on deliverables at Grid-Interop	2009-11	2009-11	PAP03WG	D1
✓	T4	Plan to import and use material from PAP04	2009-12	2009-12	NAESB	D2
✓	T5	Plan to import and use material from PAP04	2009-12	2009-12	OASIS	D3
✓	T6	Plan to import and use material from PAP04	2009-12	2010-05	ZigBee	D3
✓	T7	Data model draft publicly visible	2010-02	2010-02	OASIS	D3
✓	T8	Data model draft publicly visible	2010-02	2010-04	ZigBee	D3
✓	T9	Draft price and product definition specification to others	2010-04	2010-05	OASIS	D4
✓	T10	Draft price and product definition specification to others	2010-04	2010-04	ZigBee	D4
✓	T11	Requirements evaluation; define scope/schedule/deliverables	2010-06	2010-06	PAP03WG	D5
TBD	T12	Deliverables evaluation; define scope/schedule/deliverables [subsumed by TPM08 and TPM09 above]	N/A	N/A	PAP03WG	D6
✓	T13	Deliver requirements from PAP07 to OASIS Energy Market Information Exchange TC	October 2010		PAP07	D2

Status	Schedule	Deliverables	Resources
January 2010			
February 2010			
March 2010			
April 2010			
May 2010			
June 2010			
July 2010			
August 2010			

September 2010			
October 2010			
November 2010			

Status of PAP04: Develop Common Schedule Communication Mechanism for Energy Transactions







Updated November 4, 2010.

A#	Current Activities and Accomplishments	S	D#	Deliverable
A14	xCal submitted to IETF to finish Standards Track process July 2010	✓	D1	Update pre-existing IETF standards for extensibility
A17	The WS-Calendar TC is addressing SGIP guidance and working on their next draft.	✓	D2	Standard XML Serialization for Bi-directional Translation
A18	PAP04 Requirements delivered in July 2010 to WS-Calendar	✓	D3	Use cases and requirements to test the standard
A19	WS-Calendar planning Formal Public Review in September/October 2010	✓	D4	Associated semantics for schedule performance related to WS-Calendar standard
A20	Consumption of PAP04 work in NAESB Energy Usage Public Review Draft, August 2010	✓	D5	Create essential WS APIs for Calendars and Schedules
A21	WS-Calendar out for formal 60 day public review September 24, 2010 through November 23, 2010	🔄	D6	Develop improved WS Calendar: Align APIs and semantics across SDOs
A23	Comments on the WS-Calendar public review have been made to assure coordination between PAPs 03, 04, and 09 as the others move toward public review			
A24	PAP03 includes detailed applications of WS-Calendar. The most recent draft of EMIX and its XML Schemas using WS-Calendar were available November 1			
A25	PAP07 schedule and other requirements for DER are being addressed through WS-Calendar and the recent versions of EMIX			

I#	Issues, Concerns & Help Needed	S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
I2	Other PAPs need to clarify their consumption of PAP04 output and coordinate as necessary.	✓	TPMO1	PAP Initiation	2009-07	2009-07	SGIP	
I5	ZigBee has not clearly addressed PAP04 in its work to date (See PAP03 tables)	✓	TPMO2	PAP Charter Developed	2009-08	2009-08	SGIP	
I6	Need to integrate PAP07 requirements in Public Review Draft	✓	TPMO3	Form Initial Team	2009-08	2009-08	SGIP	
		✓	TPMO4	Develop List of Deliverables and Tasks with Assignments	2009-08	2009-08	SGIP	
		✓	TPMO5	SSO Identified	2009-07	2009-07	SGIP	
		✓	TPMO6	Development of Requirements By PAPWG	2009-12	2009-12	NAESB	D3
		✓	TPMO7	Requirements Handoff to SSO	2009-12	2009-12	NAESB	D3
		✓	TPMO8	Standards Handback to PAPWG from SSO	2010-4Q	2010-09	OASIS	
		🔄	TPMO9	SSO Results submitted	2010-		SGIP	

		to GB by PAP after completing analysis	4Q			
	TPM10	PAP Complete	2011-02		SGiP	
S	T#	PAP Work Tasks	Due	Actual	Resp	D#
✓	T1	Update IETF iCalendar format to allow extensibility	2010-01	2009-09	CalConnect	D1
✓	T2	Standard XML serialization of extensible iCalendar out for public review	2010-01	2009-11	CalConnect	D2
✓	T3	Standard APIs for Calendar-to-Calendar communications for inclusion in WS-Calendar	2010-08	2010-09	CalConnect	D4
✓	T4	Submit output of T2 to IETF for approval as Standards Track RFC	2010-05	2010-05	CalConnect	D1
✓	T5	Develop Smart Grid use cases and requirements for for use in WS-Calendar	2009-10	2010-04	NAESB	D3
✓	T6	Create Committee to develop service-oriented schedule profiles based on IETF xCalendar and APIs (WS-Calendar)	2010-01	2010-01	OASIS	D5
✓	T7	WS-Calendar work out for public review	2010-04	2010-05	OASIS	D5
✓	T8	Submission of WS-Calendar public review draft to IEC Power Management CIM	2010-05	2010-05	OASIS	D6
✓	T9	Development of Requirements by PAPWG [See NOTE]	2010-07	2010-07	PAP04WG	D3
✓	T10	Standards Handback to PAPWG from SSO	2010-4Q		OASIS	D6

NOTE: Original [D3](#) completed; T9 addresses high level requirements from the NIST Framework and Roadmap.

Status	Schedule	Deliverables	Resources
January 2010			
February 2010			



March 2010			
April 2010			
May 2010			
June 2010			
July 2010			
August 2010			
September 2010			
October 2010			
November 2010			

Status of PAP05

Updated November 5, 2010.

A#	Current Activities and Accomplishments	S	D#	Deliverables
A11	PAP05WG evaluated the AEIC guidelines against the requirements, a few points left to resolve for the final PAPWG disposition.	✓	D1	Utility requirements mapping
		✓	D2	Expression of AEIC v2.0 Guidelines in terms of additional device class(es)
A12	Voting Group formed for final requirements vote and A11 disposition vote	✓	D3	Revision of AEIC v1.0 Guidelines
		✓	D4	Data type profiles for specific Use Case(s)
A13	Voting Group is balloting final requirements, closes 11/10	✓	D5	White Paper/Presentation on ANSI metering protocol standards
A14	AEIC AMTI is resolving comments to v2.0 guidelines document	✓	D6	New capabilities as developed during PAP05 work
		✓	D7	Publicly available training materials
A15	PAP05WG will wait for final AEIC v2.0 guidelines and perform a final review of that document against the requirements	✓	D8	Design Document
		✓	D9	Analysis
		✓	D10	Use Cases and Requirements
		✓	D11	Gap Report

I#	Issues, Concerns & Help Needed	S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
I5	The decision to prepare the final disposition on the published v2.0 Guidelines negatively impacts the schedule.	✓	TPMO1	PAP Initiation	2009-08	2009-08	PAP05WG	TWiki
I6	The AEIC AMTI comment resolution process is taking longer than expected.	✓	TPMO2	PAP Charter Developed	2009-08	2009-08	PAP05WG	TWiki
		✓	TPMO3	Form Initial Team	2009-08	2009-08	PAP05WG	TWiki
		✓	TPMO4	Develop List of Deliverables and Tasks with Assignments	2009-08	2009-08	PAP05WG	TWiki
		✓	TPMO5	SSO Identified	2009-08	2009-08	PAP05WG	TWiki
		✓	TPMO6	Development of Requirements By PAPWG	2009-08	2009-08	PAP05WG	TWiki
		✓	TPMO7	Requirements Handoff to SSO	2009-08	2009-08	PAP05WG	TWiki
		✓	TPMO8	Standards Handback to PAPWG from SSO	2010-08	2010-08	AEIC	1,2,6,8
		✗	TPMO9	SSO Results submitted to GB by PAPWG after completing analysis	2010-10		PAP05WG	9
		✗	TPM10	PAP Complete	2010-		SGIPGB	N/A

10						
S	T#	PAP Work Tasks	Due	Actual	Resp	D#
✓	T1	Map utility requirements expressed via AEIC Guidelines v2.0 to Device Classe	05/2010	08/18/2010	AEIC AMTI	D1
✓	T2	Express AEIC Guidelines v2.0 in terms of one or more additional Device Classe	05/2010	08/18/2010	AEIC AMTI	D2
✓	T3	Complete revision of AEIC Guidelines v2.0	12/2009	12/11/2009	AEIC AMTI	D3
✓	T4	Minimize the variations in data types transported from and to End Devices (real-time communication and enterprise data representations).	01/2010	03/22/2010	AEIC AMTI	D4
✓	T5	Socialize the existence of additional Tables within ANSI C12.21-2006 and C12.22-2008 via WP/PPT report.	05/2010	05/25/2010	Team Members	D5
✓	T6	Provide definitions and recommendtaions for Function Control Limiting Table values and general configuration.	05/2010	08/18/2010	AEIC AMTI	D6
✓	T7	Develop education package around ANSI C12.18-2006, C12.19-2008, C12.21-2006 and C12.22-2008.	04/2010	05/17/2010	Team Members	D7

✓	T8	Minimize variation and maximize interoperability of Application Services and behaviors within ANSI C12.18-2006, ANSI C12.19-2008, ANSI C12.21-2006 and ANSI C12.22-200	06/2010	08/18/2010	AEIC AMTI	D8
●	T9	PAP05WG to analyze D3; initial analysis on 9/13/2010	10/2010		PAP05WG	D9
●	T10	Report on Framework-based Use Cases and Requirements.	10/2010		PAP05WG	D10
✓	T11	Create and deliver Gap Report.	09/2010	08/06/2010	AEIC AMTI	D11

Status	Schedule	Deliverables	Resources
January 2010	●	●	●
February 2010	●	●	●
March 2010	●	●	●
April 2010	●	●	●
May 2010	●	●	●
June 2010	●	●	●
July 2010	●	●	●
August 2010	●	●	●
September 2010	●	●	●
October 2010	●	●	●
November 2010	●	●	●

Status of PAP06

Updated November 15, 2010.



A#	Current Activities and Accomplishments
A8	PAP abstract and goals refocused on 10/01. WG discussed on 10/22.
A9	New PAP requirements constructed and under discussion for acceptance. WG agree on 11/12.

I#	Issues, Concerns & Help Needed
I2	Need to coordinate with PAP05WG, including explicit coordination requirements (review of PAP05WG Deliverable 3)
I3	Need to accelerate Use Case selection (D1)
I4	Need to get committed 'SSO' for D3, D4










S	D#	Deliverables
	D1	Key Use Cases
	D2	Requirements
	D3	UML meta model of ANSI C12.19-2008
	D4	UML/TDL Binding
	D5	UML model refinement based on SGAC input
	D6	Gap/Overlap Report C12.19/61968-9

S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
	TPMO1	PAP Initiation	2009-08	2009-08	PAP06WG	TWiki
	TPMO2	PAP Charter Developed	2010-01	2010-01	PAP06WG	TWiki
	TPMO3	Form Initial Team	2009-08	2009-08	PAP06WG	TWiki
	TPMO4	Develop List of Deliverables and Tasks with Assignments	2010-01	2010-01	PAP06WG	TWiki
	TPMO5	SSO Identified	2010-04	2010-04	PAP06WG	TWiki
	TPMO6	Development of Requirements By PAPWG	2010-11	2010-11	PAP06WG	TWiki
	TPMO7	Requirements Handoff to SSO	2010-11		PAP06WG	
	TPMO8	Standards Handback to PAPWG from SSO	2010-12			
	TPMO9	SSO Results submitted to GB by PAPWG after completing analysis	2011-01		PAP06WG	
	TPM10	PAP Complete	2011-01		SGIPGB	

S	T#	PAP Work Tasks	Due	Actual	Resp	D#
	T1	Identify key use cases (should occur before mappings are performed)	2010-11		PAP06WG	D1
	T2	Requirements	2010-	2010-	PAP06WG	D2

		development	11	11		
	T3	Construct a meta model of ANSI C12.19-2008 that illustrates the class hierarchy represented by Decades, Tables and components of Tables including core data types. Build the model in UML.	2010-11		TBD	D3
	T4	Using a TDL machine readable representation, implement software to import the complete ANSI C12.19 table definitions into the UML model. Use appropriate inheritance to bind elements to the class hierarchy assembled in T3.	2010-12		TBD	D4
Date not defined	T5	Refine the UML model to correspond to the abstract semantic model being developed by the SGIP SGAC (dependency!)	TBD		TBD	D5
Date not defined	T6	Produce a side-by-side comparison of the ANSI C12.19 UML model and the IEC 61968-9 UML model to illustrate gaps and overlaps; create Gap/Overlap report	TBD		TBD	D6

Status	Schedule	Deliverables	Resources
March 2010			
April 2010			
May 2010			
June 2010			
July 2010			
August 2010			

September 2010			
October 2010			
November 2010			

Status of PAP07: Energy Storage Interconnection Guidelines

Updated October 11, 2010

Current Activities and Accomplishments		Deliverable	
A1	(May 2010) The balloting for IEEE 1547.6 is completed. The balloting for IEEE 1547.4 is underway.	✓ D1	Task 0 Activities: Development of Scoping Study Document (MS Word version)
A2	(June 2010) IEC 61850 information models were developed for some of the key Use Cases, and have been submitted to the IEC TC57 WG17. These additions to IEC 61850-7-420 were reviewed by WG17 during the September 27-29 meeting in Montreal (see A6).	✓ D2	Task 1a Use Cases: List of ES-DER Use Cases (organized by type) (MS Word version)
A3	(August 2010) The first meeting of the IEEE 1547.8 was held in August, with multiple sub-groups formed to work on specific issues.	✓ D3	Task 4 Use Cases Descriptions for Key ES-DER Use Cases (MS Word version) - 1st draft complete
A4	(August 2010) Mapping of 61850 DER models to SEP had multiple very successful meetings. Preliminary mappings have been accomplished, and consistency checking with other UML modeling of 61850 is underway. See A7 for updates on this process.	✓ D4	Completing IEEE 1547.4 & .6 per IEEE rules See IEEE 1547 Web Page
A5	(September 2010) Face-2-face meeting at the SGiP St. Louis meeting discussed what supporting activities should be done while PAP 7 goes into "monitoring and support" mode. The results are that PAP 7 will clean up the Scoping Document and turning it into a White Paper, developing the testing and certification requirements, and following up on ES-DER projects such as the IRC efforts and EPRI's Inverter Specifications. Cyber security issues were left to be handled in some other forum.	✓ D5	Initiated PAR for IEEE 1547.8 per IEEE rules See IEEE 1547 Web Page
A6	(October 2010) Met with IEC TC57 WG17 to discuss PAP 7 submittals. These were eagerly accepted for review, with the European vendors especially anxious to get a document they could use for production. In order to get such a document rapidly, it was agreed that a (informative) Technical Report (IEC 61850-90-7) would be developed by the end of November, for approval by National Committees within a couple of months - by March or April 2011. The vendors felt they could use this document, even though it was only informative (not normative) and details might change. In parallel, the longer, consensus-driven process for a normative standard (IEC 61850-7-420, edition 2) would be commenced, with the plan for standardization by 2012.	✓ D6	Information Exchange requirements for key ES-DER Use Cases submitted to IEC TC57 17
A7	(October 2010) Mapping to both DNP3 and SEpv2 are in process. The DNP3 mapping is almost complete. The SEP effort has developed the basic 61850 models, but still needs to determine how to handle arrays and		



schedules. WS-calendar needs to be reviewed to determine if it can handle at least the basic scheduling.

A8 **(October 2010)** Cross-PAP and cross-modeling issues still need discussions. One approach has been discussed between 61850 and CIM, which is for CIM to model the primary 61850 Common Data Classes (CDCs) as complex datatypes in the CIM. This would simplify the retrieval of field data into the CIM.

I	Issues, Concerns & Help Needed
I1	(May 2010) See Task 4f: Need to develop an IEC 61850 UML model, expressed in Enterprise Architect, so that harmonization with CIM can be more precisely described and so that mappings to protocols like SEP 2.0 can use this same UML model for that mapping. This has been accomplished -October 2010.
I2	(October 2010) With IEC 61850 now (almost) available as a UML model in Enterprise Architect, harmonization with CIM should include the development in CIM of complex datatypes which map directly to 61850 Common Data Classes. This would greatly simplify the interface between 61850 and CIM. Possibly the SGiP Architecture Committee (SGAC) could review this proposal and determine if and how they might progress the concept.














S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
✓	TPMO1	PAP Initiation	2009-08	2009-08	SGiP	
✓	TPMO2	PAP Charter Developed	2009-08	2009-08	SGiP	
✓	TPMO3	Form Initial Team	2009-08	2009-08	SGiP	
✓	TPMO4	Develop List of Deliverables and Tasks with Assignments	2009-08	2009-08	SGiP	
✓	TPMO5	SSO Identified	2009-08	2009-08	PAP 7	
✓	TPMO6	Development of Requirements By PAPWG	2010-04	2010-04	PAP 7	
✓	TPMO7	Requirements Handoff to SSO	2010-06	2010-06	PAP 7	D3 & D5
	TPMO8	Standards Handback to PAPWG from SSO	2011-06		IEEE and IEC	
	TPMO9	SSO Results submitted to GB by PAP after completing analysis	2011-08		PAP 7	
	TPM10	PAP Complete	2011-11		SGiP	

S	T#	PAP Work Tasks	Due	Actual	Resp	D#
✓	T0	Scoping Document Draft v1	Nov-2009	Nov 2009	PAP 7	D1
✓	T1	Collect Use Cases with Brief Narratives	Mid-Feb-2010	Mid-Feb list of Use Cases was completed	PAP 7 members	D2
✓	T2	Complete IEEE 1547.4 (Draft Guide for Design, Operation, and Integration of Distributed	Aug-2010	1547.4 is currently in ballot, as per IEEE 1547 balloting schedule, and	IEEE 1547	D4

		Resource Island Systems with Electric Power System) & .6 (Draft Recommended Practice For Interconnecting Distributed Resources With Electric Power Systems Distribution Secondary Networks)		due for final release by July/August 2010. 1547.6 is in pre-ballot and is expected to be released by December 2010		
✓	T3	Initiate IEEE 1547.8 to address interconnection issues of storage (title not known yet)	Feb-2010	IEEE PAR approved in March, with first meeting scheduled for August 2010	IEEE 1547	D5
✓	T4	Prioritize and develop details for key ES-DER Use Cases	Mar-2010	April 5 2010	NIST & PAP 7	D3
✓	T4a	Provide key ES-DER Use Cases to PAPs 3, 4, and 9, and discuss whether the ES-DER schedules and pricing signal requirements are covered adequately	April 2010	April 2010: Use Cases were provided	PAP 7, PAPs 3, 4, 9	D3
✓	T4b	Provide key ES-DER Use Cases to PAP 10 and discuss whether ES-DER issues are adequately covered under Energy Usage	April 2010	April 2010: Use Cases were provided - PAP 10 has deferred ES-DER considerations	PAP 7, PAP 10	D3
✓	T4c	Provide key ES-DER Use Cases to PAP 11 and discuss if additional PEV	June 2010	May 25: Use Cases were provided to PAP 11, discussions are	PAP 7, PAP 11	D3

		Use Cases need to be added to ES-DER Use Cases		taking place		
✓	T4d	Provide key ES-DER Use Cases to PAP 16 and discuss if any addition actions need to be taken by PAP 16 for handling Wind plus ES-DER	April 2010	April 2010: Use Cases were provided - no specific issues found at this time - the IEC TC57 WG17 may pick up later	PAP 7, PAP 16	D3
✓	T4e	Develop Information Exchange requirements for key ES-DER Use Cases	June 2010	June 2010	PAP 7	D3
✓	T4f	Hand off Information Exchange requirements for key ES-DER Use Cases to IEC TC57 WGs 14 & 17	June 2010	June 2010: Object modeling requirements handed off to IEC TC57 WG17	PAP 7	D6
✓	T5	SDOs to start development of safety codes and test methods to ensure safe and reliable implementation of Task 3 - specifically UL 1741	Aug 2010	August 2010: UL has officially initiated the process to revise UL 1741	UL,	D5
🟢	T6a	Review and approve P1547.8 results as meeting PAP 7 requirements	June 2011		PAP 7	
🟢	T6b	Review and approve IEC 61850 results as meeting PAP 7 requirements	Dec 2011		PAP 7	
🟢	T6c	Review and approve UL 1741 results as meeting PAP 7	June 2011		PAP 7	

requirements

Status	Schedule	Deliverables	Resources
June 2010			
July 2010			
Aug 2010			
Sept 2010			
Oct 2010			

Status of PAP08: CIM/61850 for Distribution Grid Management

Updated November 13, 2010

A	Current Activities and Accomplishments	S	D#	Deliverable
A7	MultiSpeak (R) Version 4.1 delivered	✓	D1	UML Model of MultiSpeak
A8	CIMTool specification delivered	🟢	D2	UML Tools for CIM (deliverable is internal to IEC TC57 WG14)
A9	Next steps identified for task T9	✓	D3	Interoperability Test of CIM Wires Model (completed Nov 2009 - refer to IEC)
A10	First pass of the messages identified in the Use Case is completed. The sequence diagram is being rewritten to simplify the model.	✓	D4	Distribution Grid ManagementSG UC_nm3.doc: Updated version of the DGM Use cases ADA DOMA/FLIR/ VVWO Use Cases with requirements for Distribution Grid Management
A11	Resources have been engaged to develop deliverable D2 - The project tasks have been re-baselined.	✓	D5	ADA Functions - Sequence Diagrams.pdf : ADA_Functions_-_Sequence_Diagrams.pdf Use Cases with appropriate details for IEC TC57 WGs (61850 and CIM)
A12	Resources have been engaged to develop deliverables D6 and D7 - The project tasks have been re-baselined.	🟢	D6	IEC 61968, Parts 3 & 5, CIM updated standards to meet the PAP 8 Use Case application-to-application requirements
		🟢	D7	IEC 61850-7-4xx standards to meet the PAP 8 Use Case interactions with field equipment

I	Issues, Concerns & Help Needed	S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
I3	IEC TC57 WG14 needs additional experts and additional time from existing experts to update the CIM (IEC 61968 Parts 3 & 5, as well as other parts) to meet the requirements described in the PAP 8 Use Cases (See Help Wanted Page)	✓	TPMO1	PAP Initiation	2009-09	2009-09	SGIP	
		✓	TPMO2	PAP Charter Developed	2009-10	2009-10	SGIP	
		✓	TPMO3	Form Initial Team	2009-11	2009-11	SGIP	
		✓	TPMO4	Develop List of Deliverables and Tasks with Assignments	2010-06	2010-06	SGIP	
		✓	TPMO5	SSO Identified	2009-11	2009-11	SGIP	
		🟢	TPMO6	Development of Requirements By PAPWG	2010-11		SGIP	
		🟢	TPMO7	Requirements Handoff to SSO	2010-11		SGIP	
		🟢	TPMO8	Standards Handback to PAPWG from SSO	2011-07		IEC	
		🟢	TPMO9	SSO Results submitted to GB by PAP after completing analysis	2011-08		SGIP	
		🟢	TPM10	PAP Complete	2011-11		SGIP	
S	T#	PAP Work Tasks	Due	Actual	Resp	D#		

✓	T1	UML model for MultiSpeak	Jun-2010	Jun-2010	NRECA	D1
✓	T2	Team for UML tools for CIM	Jun-2010	Jun-2010	IEC TC57 WG14	D2
✓	T3	Team for interoperability testing	Nov-2009	Nov-2009	IEC TC57 WG14	D3
✓	T4	Web conference CIM Modeling team	Nov-2009	Nov-2009	IEC TC57 WG14	D4
✓	T5	Create SG use case team	Nov-2009	Nov-2009	Mini-T&D team	D5
✓	T6	Use Case master list	Jan-2010	Jan-2010	Mini-T&D team	D5
✓	T7	Key Use Cases prioritized and refined	Feb-2010	Feb-2010	UCI	D5
✓	T8	Review Use Cases and complete Sequence Diagrams of those Use Cases	Apr-2010	Apr-2010	NIST, PAP 8	D6
●	T9	Provide completed Use Cases to the IEC TC57 WGs 14 & 17	Nov-2010		NIST, PAP 8	D6, D7
●	T10	Track progress on developing CIM and 61850 models from the Use Cases	Dec-2011?		IEC TC57 WG14 & 17	
●	T11	Modify UML tool for use with Multispeak	Nov-2010		EPRI	D2

Status	Schedule	Deliverables	Resources
April 2010	●	●	●
May 2010	●	●	●
June 2010	●	●	●
July 2010	●	●	●
August-2010	●	●	●
September 2010	●	●	●
October 2010	●	●	●
November 2010	TBD	TBD	TBD

Status of PAP09: Standard DR and DER Signals

Updated November 5, 2010.

A#	Current Activities and Accomplishments	S	D#	Deliverable
A11	The Working Group held a face-to-face review of OASIS Energy Interoperation jointly with UCAlug on July 20; guidance has been delivered to the OASIS TC		D1	Standard Vocabulary for DR and DER
			D2	Direct Load Management Communication
			D3	Collaborative Load Management Communication
			D4	Grid safety Signals
A12	Members of the ISO/RTO Council have joined the OASIS Technical Committee and have contributed additional requirements July 2010		D5	DER support (deferred)
			D6	Other signals and/or an extensibility mechanism
A13	Leadership meetings are taking place among the UCAlug OpenADR Task Force and OASIS Energy Interoperation TC			
A14	Southern California Edison has joined the OASIS Energy Interoperation TC			
A15	The OASIS Energy Interoperation TC has planned Formal Public Review autumn 2010			
A16	Detailed and close collaboration between the UCAlug OpenADR TF, ISO/RTO Council, and OASIS Energy Interoperation is continuing to address stakeholder issues on a timely basis			
A17	PAP09 reviewed the current OASIS Energy Interoperation draft standard at UCAlug's OpenADR Task Force on November 2			
A18	NAESB's Phase 2 Requirements were reviewed by the PAP09 working group at UCAlug's OpenADR Task Force on November 3			
A19	Comments on the WS-Calendar public review have been made to assure coordination between PAPs 03, 04, and 09 as 03 and 09 move toward public review			
A20	Collaboration and joint evolution of EMIX and Energy Interoperation have driven the respective goals of PAP 03 (EMIX) and PAP 09 (EI) as they both move toward public review			
A21	PAP07 schedule and other requirements for DER are being addressed through WS-Calendar and the recent versions of EMIX, and will be used by PAP09			
A22	Energy Interoperation is using the most recent draft of EMIX and its XML Schemas as			



available November 1

I#	Issues, Concerns & Help Needed	S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
I2	Comments on PAP-15 call for a standard DR interface for appliances; this appears to be more communication related	✓	TPMO1	PAP Initiation	2009-07	2009-07	SGIP	
I3	Completion is dependent upon completion of EMIX (PAP03) [public review scheduled November 2010]	✓	TPMO2	PAP Charter Developed	2009-08	2009-08	SGIP	
		✓	TPMO3	Form Initial Team	2009-08	2009-08	SGIP	
I4	Completion is dependent upon completion of WS-Calendar (PAP04) [public review ends November 2010]	✓	TPMO4	Develop List of Deliverables and Tasks with Assignments	2009-08	2009-08	SGIP	
		✓	TPMO5	SSO Identified	2009-07	2009-07		
I5	Need to integrate PAP07 Requirements. See T14 and A22	✓	TPMO6	Development of Requirements By PAPWG (see NOTE)	2009-12	2009-12		
		✓	TPMO7	Requirements Handoff to SSO	2009-12	2010-04		
		🟢	TPMO8	Standards Handback to PAPWG from SSO	2010-12			
		🟢	TPMO9	SSO Results submitted to GB by PAP after completing analysis	2011-01			
		🟢	TPM10	PAP Complete	2011-04			
S	T#	PAP Work Tasks		Due	Actual	Resp	D#	
✓	T1	Collect, Analyze, and Consolidate Use Cases and deliver requirements (inc DER)		2009-10	2010-04	NAESB	D1	
✓	T2	Direct Load Management: (Residential Applications) Message Semantics Work DR, DER		2010-04	2010-04	Zigbee	D2	
✓	T3	Collaborative Load Management: (C+I Applications) Message Semantics, DR, DER		2010-04	2010-04	OASIS	D3,D6	
*	T4	Coordinate and merge Direct and Collaborative Load Management development tracks.		2010-04	deferred	NAESB	D1	
🟢	T5	Submit collaborative load management task outputs to IEC TC57 when completed		no date		OASIS	D3	
🟢	T6	Submit direct load management outputs to IEC TC57 when completed		no date		Zigbee	D2	
✓	T7	Downstream user		2009-	2009-09	LonMark	D3	

		requirements/engagement	10		BACnet	
✓	T8	Downstream user requirements/engagement	2009-10	2009-10	Zigbee	D2
✓	T9	Additional message requirements for Distribution (none required)	2009-10	2009-10	MultiSpeak	D1
*	T10	Resale and process for safety and interconnection (deferred)	2009-10	deferred	NAESB	D5,D4
✓	T11	Vocabulary for DR, DER actor names	2009-09		NAESB	D1
✓	T12	Development of Requirements by PAPWG [See NOTE]	2010-07		PAP09WG	D1
●	T13	Standards Handback to PAPWG from SSO	2010-4Q		OASIS	D6
✓	T14	Deliver requirements from PAP07 to OASIS Energy Interoperation TC	October 2010		PAP07	

NOTES: Original [D1](#) completed 2009-12 and delivered 2010-04; T12 addresses high level requirements from the NIST Framework and Roadmap. T4 Was deferred by the WG; T10 was examined and no work was determined to be needed at this time. T5 and T6 will be completed when the other work is completed.

Status	Schedule	Deliverables	Resources
January 2010	●	●	●
February 2010	●	●	●
March 2010	●	●	●
April 2010	●	●	●
May 2010	●	●	●
June 2010	●	●	●
July 2010	●	●	●
August 2010	●	●	●
September 2010	●	●	●
October 2010	●	●	●
November 2010	●	●	●

Status of PAP10: Standard Energy Usage Information:

Updated November 5, 2010.










A#	Current Activities and Accomplishments	S	D#	Deliverable
A1	NAESB initiates ESPI standard to orchestrate exchange of Energy Usage Information via Third Party 61968 Access. First F2F meeting held October 6,7 in Houston at Reliant Energy	✓	D1	Use cases and requirements for standard energy usage information exchange
		✓	D2	Short term plans for near-term customer access to usage data based upon today's installed meters
A2	NAESB PAP10 Standard successfully voted out of Executive Committee entering ratification period	●	D3	NAESB PAP10 Energy Usage Information Standard: An Information model to satisfy present and future needs for exchange of energy usage information
		●	D4	Implement a plan to expedite harmonized standards development and adoption: OASIS, IEC61970/61968, IEC61850, ANSI C12.19/22, PAP 17/ASHRAE SPC201, and ZigBee Smart Energy Profile (SEP) 2.0.

I#	Issues, Concerns & Help Needed	S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
I1	Many CIM issues resolved but several still outstanding and not resolvable in first release of PAP10 standard. Resulting differences will result in non-integratable extensions to the IEC 61968 part 9	✓	TPMO1	PAP Initiation	2009-07	2009-07	SGIP	
		✓	TPMO2	PAP Charter Developed	2009-07	2009-08	SGIP	
I2	Need to address deliverable 4 -- migration of the NAESB standard to implementing SDOs. Plan to begin construction of requirements document to address this subject	✓	TPMO3	Form Initial Team	2009-07	2009-08	SGIP	
		✓	TPMO4	Develop List of Deliverables and Tasks with Assignments	2009-07	2009-08	SGIP	
I3	Need to process standard hand-back from NAESB to gain consensus approval from PAP10 committee	✓	TPMO5	SSO Identified	2010-06	2010-06	PAP10WG	
		✓	TPMO6	Development of Requirements By PAPWG	2010-06	2010-06	PAP10WG	D1
		✓	TPMO7	Requirements Handoff to SSO	2010-06	2010-06	PAP10WG	
			TPMO8	Standards Handback to PAPWG from SSO	2010-12		SSO	
			TPMO9	SSO Results submitted to GB by PAP after completing analysis			PAP10WG	
			TPM10	PAP Complete			PAP10WG	

S	T#	PAP Work Tasks	Due	Actual	Resp	D#
✓	T1	Reach out to ANSI C12, IEC, ZigBee, and OASIS for formal involvement.	2009-08	2010-01	UCAIug	D1

	Plan additional engagement				
✓	T2 Create preliminary Requirements and Use Cases for early deployment	2009-10	2009-11	UCAlug	D2
✓	T3 Reach out to additional stakeholders especially commercial, industrial, and residential	2010-01	2010-01	EIS Alliance	D1
✓	T4 Gather requirements and use cases for intra-premise scenarios that require inter-domain data exchange	2010-01	2010-01	EIS Alliance	D1
✓	T5 Survey current practice. Gather existing usage communications between energy suppliers and consumers, including providers of intermediary services	2010-07	2010-07	NAESB	D1
✓	T6 Consolidate use cases and requirements into a Basic Energy Usage Information straw model to contribute to NAESB standards process	2010-06	2010-06	PAP10 individuals	D1
✓	T7 Produce first delivery information model for today's meters and infrastructure (from utility information systems)	2010-02	2010-04	UCAlug	D2
●	T8 Expedite harmonized standards development and adoption within the associated standards bodies	2011-01		NAESB	D4
●	T9 Produce Energy Usage information model specification	2010-12		NAESB	D3

Status	Schedule	Deliverables	Resources
April 2010	●	●	●
May 2010	●	●	●
June 2010	●	●	●
July 2010	●	●	●

August 2010			
September 2010			
October 2010			

Status of PAP11: Common Object Models for Electric Transportation*

PAP 11 Tasks Deliverables Summary

Task 1: D1, D5, D9: PEV Use Cases

<http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP11PEVUseCases>

Leads:

Arindam Maitre (EPRI), Nathan Tenney (PNL)

The following are the current use cases developed by PAP 11 PEV Working Groups:

- Different_utility_plans_to_identify_the_basic_customer_attributes_V1.doc
- Electric_Vehicle_Diagnostics_v1_1.doc
- Electric_Vehicle_Load_Management_v1.1.doc
- Electric_Vehicle_Roaming_v1.1.doc
- EV_Network_test_v1.1.doc
- PEV_as_Storage_Scenario_V1.doc
- PEV_default_charge_modes_v1.0.doc
- PEV_Participates_in_Utility_Programs_V1.doc
- Use_Case_-_Utility_Provides_Accounting_Services_to_PEV_Customer.doc
- Utility_provides_services_to_PEV_Customer_to_enrolls_in_program_and_PEV_is_registered_on_home_network_V1.doc
- Impact_of_PEV_as_Load_and_Electric_Storage_on_Distribution_Operations.doc

This development satisfies PAP 11 Task 1A - Use cases in [SGIP](#) format. These use cases and requirements were used as input for development of SAE J2836/1 and SAE J2847/1.

Task 2: D7 - Drafting high level information model

<http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP11Objective7>

Leads: Greg Robinson (Extensible Solutions), Robby Simpson (GE)

PAP 11 is using the Common Information Model (CIM) for constructing PEV information models, information sets and for exchange of information in messages between PEV and EVSE and utility/3rd party providers. PAP 11 Information Models have been developed under Smart Energy 2.0. Smart Energy 2.0 has been developed as a CIM extension. All CIM based PEV models are being submitted to IEC TC57 Working Groups for adoption.

This development satisfies PAP 11 Task 3 - Draft high level information model, evolve robust object models.

Task 3: D2 - Need to overcome collaborative difficulties among SDOs

<http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP11Objective2>

Leads: Greg Robinson (Extensible Solutions), Robby Simpson (GE)

PAP 11 is using Common Information Model for constructing PEV information models, information sets and for exchange of information in messages between PEV and EVSE and utility/3rd party providers. Smart Energy Alliance, an industry group consisting of [ZigBee](#) Alliance, [HomePlug](#) Alliance, and Wi-Fi Alliance have developed Smart Energy 2.0 to facilitate the development and adoption of Smart Grid functionality at customer premises over Home Area Networks (HANs).

<http://www.zigbee.org/Markets/ZigBeeSmartEnergy/Version20Documents.aspx>

In March 2010, SAE and Smart Energy Alliance signed a Memorandum of Understanding agreeing to work together on defining Smart Energy information models for PEVs. Smart Energy information models has developed HAN device information models based on CIM.

This development satisfies PAP 11 Task 2 - The need to overcome collaborative difficulties among SDOs.

Task 4: D3 - Map 61968 and 61850

<http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP11Objective3>

MOVED TO NEW PEV IMPLEMENTATION PAP

Task 5: D6 – Reviewing regulations with regulators

<http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP11Objective6>

MOVED TO [V2G](#) DEWG

Task 6: D4 - Review related standards for barrier to PEV adoption

<http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP11Objective4>

Lead: Efrain Ornelas (PG&E)

NIST_Task_6_summary_report_5_10_2010.doc

http://collaborate.nist.gov/twiki-sggrid/pub/SmartGrid/PAP11Objective4/NIST_Task_6_summary_report_5_10_2010.doc

This development satisfies PAP 11 Task 6 - Define all SDO related activities.

Task 7: D8 - SAE Evaluation of PLC for PEVs

<http://collaborate.nist.gov/twiki-sggrid/bin/view/SmartGrid/PAP11Objective4>

MOVED TO PEV IMPLEMENTATION PAP

SAE Standards - Released

SAE J1772-TM PEV Connector Standard Released: Electric Vehicle and Plug in Hybrid Electric Vehicle Conductive Charge Coupler, 2010-01-15

http://standards.sae.org/j1772_201001/

SAE J2836-1 PEV Use Cases Standard Released: Use Cases for Communication Between Plug-in Vehicles and the Utility Grid, 2010-04-08

http://standards.sae.org/j2836/1_201004/

SAE J2847-1 PEV Communications Requirements Released: Communication between Plug-in Vehicles and the Utility Grid, 2010-06-16

http://standards.sae.org/j2847/1_201006

Updated November 9, 2010.

A#	Current Activities and Accomplishments	S	D#	Deliverable
A3	Provided extensive input to Smart Energy Profile 2.0 SRS 0.9 requirements for PEV messages and information exchange sets.	✓	D1	PEV Use Cases
		✓	D2	Memo SAE and Smart Energy
		✓	D3	Map 61968 and 61850
A4	Joint Collaboration with IEC TC57, WG 14, 17, 19, TC69 (PEV) July 2010	✓	D4	Define all SDO related activities
		✓	D5	Use Cases in SGIP format
A5	PEV Information Model developed in CIM as extension defined by SEP 2.0 SRS 0.9, Harmonization between IEC 61968 (CIM) and IEC 61850 as proposed by EPRI study	✓	D6	Organize Regulatory Advisors Task Force
		✓	D7	Drafting high level information model, evolve robust object models
A6	Set up Regulatory Affairs Task Force in July 2010 with 6 initial states participating	✓	D8	SAE Evaluation of PLCs for PEVs
		✓	D9	Complete list of PEV Requirements
A7	Face-to-Face meeting in July 2010 in conjunction with OpenSG User group meetings. Next meeting scheduled in October 2010.	✓	D10	Need to overcome collaborative difficulties with IEC
		✓	D11	Develop requirements for Level 3 and DC connector and hand off to new PEV PAP
A9	Face-to-Face meetings with EPRI Infrastructure Working Council. Met jointly in September 1-2, 2010, next meeting December, 2010 in Detroit, MI.			

A10	SAE J1772-TM PEV Connector Standard Released: Electric Vehicle and Plug in Hybrid Electric Vehicle Conductive Charge Coupler, 2010-01-15
A11	SAE J2836-1 PEV Use Cases Standard Released: Use Cases for Communication Between Plug-in Vehicles and the Utility Grid, 2010-04-08
A12	SAE J2847-1 PEV Communications Requirements Released: Communication between Plug-in Vehicles and the Utility Grid, 2010-06-16
A13	SGiP Face-to-Face Meeting with PAP 11 in St. Louis, MO
A14	SEP 2.0 Application Specification Section 11, PEV messages and information sets, in final phase of development

I#	Issues, Concerns & Help Needed
I2	Coordinate with PAP 15 – PLC communication. Provide requirements.
I3	Coordinate with PAP07 – Energy Storage. Provide requirements

S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
✓	TPMO1	PAP Initiation	2009-09	2009-09	PAPWG	
✓	TPMO2	PAP Charter Developed	2009-09	2009-09	PAPWG	
✓	TPMO3	Form Initial Team	2009-09	2009-09	PAPWG	
✓	TPMO4	Develop List of Deliverables and Tasks with Assignments	2009-10	2009-10	PAPWG	
✓	TPMO5	SSO Identified	2009-10	2009-10	PAPWG	
✓	TPMO6	Development of Requirements By PAPWG	2010-08	2010-08	PAPWG	
✓	TPMO7	Requirements Handoff to SSO	2010-08	2010-08	PAPWG	
✓	TPMO8	Standards Handback to PAPWG from SSO	2010-08	2010-08	SSO	
✓	TPMO9	SSO Results submitted to GB by PAP after completing analysis	2010-10	2010-10	PAPWG	
🕒	TPM10	PAP Complete	2010-10		SGIPGB	

S	T#	PAP Work Tasks	Due	Actual	Resp	D#
✓	T1	Assemble PEV related use cases	2009-12	2009-12	Arindam Maitre EPRI	D1
✓	T1A	Use Cases in SGiP format	2010-01	2009-12	Nathan Tenney PNL	D5
✓	T1B	Complete PEV Data Communication Requirements for delivery to SSOs	2010-08	2010-08	Jerry Melcher, EnerNex	D9

✓	T2	Drafting high level information model, evolve robust object models	2010-02	2010-02	ZigBee SEP (Greg Robinson - Extensibel Solutions / Robby Simpson, GE)	D7
✓	T3	Need to overcome collaborative difficulties among SDOs	2009-08	2009-09	SAE (Jose Salazar, SCE)	D2
✓	T3A	Need to overcome collaborative difficulties with IEC	2010-06	2010-06	Eric Simmon, NIST	D10
✓	T4	Produce 61968 and 61850 documents for IEC meeting	2010-04	2010-04	TC57 WG 14,17,19 (Greg Robinson)	D3
✓	T5	Reviewing regulations with regulators	2010-05	2010-05	NEMA (Ben Biroshak) CPUC (Adam Langton)	D6
✓	T6	Review related standards for barrier to PEV adoption	2010-04	2010-05	SAE (Efrain Ornelas)	D4
✓	T7	SAE Evaluation of PLC for PEVs	2010-07	2010-07	SAE (Rich Scholer, FORD)	D8
✓	T8	Develop requirements for Level 3 and DC connector and hand off to new PEV PAP	2010-08	2010-08	NIST (Eric Simmon)	D11

Status	Schedule	Deliverables	Resources
Sep 2010	🟢	🟢	🟢
Oct 2010	🟡	🟢	🟢

Status of PAP12: Mapping IEEE 1815 (DNP3) to IEC 61850 Objects

Updated October 28, 2010.

A#	Current Activities and Accomplishments	S	D#	Deliverable
A1	New NIST contractor has commenced work and is in the process of clarifying scope and tasks for PAP-12	✓	D1	Use Case Diagrams and Data Flow Diagrams
A2	PAP-12 leadership is working closely with NIST project leader and the contractor to coordinate the work.	✓	D2	Scope Description and Outline
A3	At the recent IEC WG10 meetings, the WG agreed to collaborate with the IEEE and PAP-12 to develop the mapping specification as a joint logo document. The IEC will approve the standard and provide a standard number once the IEEE version is published.	✓	D3	Use Case Descriptions and Requirements
A4	IEEE WG C12 and PAP-12 leadership are developing a new PAR to develop the mapping specification as an IEEE standard.	✓	D4	IEEE Std 1815 (DNP3)
A5	IEEE WG C12 leadership are developing a new PAR and schedule to update IEEE 1815 to address the addition of security and editorial items	🟢	D11	IEEE PAR for mapping specification
A6	Mapping group has developed the third level of architecture definition (diagrams) needed to guide the drafting of the mapping specification. They are also completed a detailed mapping spread sheet for 4 common data classes (of IEC 61850) out of 30.	🟢	D12	Draft IEEE mapping specification to IEEE WG C12
A7	IEEE SA staff indicate that they are prepared to support both the IEEE 1815 update and the new mapping specification on an accelerated basis.	🟢	D13	IEEE mapping specification published as an IEEE standard
A8	Discussing the draft outline for the new (DNP Technical Committee sponsored) guideline for mapping DNP3 with IEC 61850.	🟢	D5	IEC 61850-80-2 New Work Item Proposal
A9	Continuing coordination with PAP-7 - we are currently developing a guide on "how you use DNP for communications with inverters" to address current industry needs. Mapping document will address known requirements for inverter communications using IEC 61850 which will lead to the use of 61850-7-420.	🟢	D6	IEC 61850-80-2 Mapping Specification
		🟢	D7	DNP3 Application Note - IEC 61850 Integration
		🟢	D8	Changes to IEC 61580 Specifications
		🟢	D9	Changes to DNP3 Specifications
		🟢	D10	Example DNP XML and SCL files

I#	Issues, Concerns & Help Needed	S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
		✓	TPMO1	PAP Initiation	2009-09	2009-09	SGIP	
		✓	TPMO2	PAP Charter Developed	2009-11	2009-11	SGIP	
		✓	TPMO3	Form Initial Team	2009-11	2009-11	SGIP	
		✓	TPMO4	Develop List of Deliverables and Tasks	2009-12	2009-12	SGIP	

		with Assignments				
✓	TPM05	SSO Identified	2009-11	2009-11	SGIP	
✓	TPM06	Development of Requirements By PAPWG	2010-04	2010-04	SGIP	
✓	TPM07	Requirements Handoff to SSO	2010-05	2010-05	SGIP	
	TPM08	Standards Handback to PAPWG from SSO	2011-06		SDO	D4, D6, D7
	TPM09	SSO Results submitted to GB by PAP after completing analysis	2011-07		SGIP	
	TPM10	PAP Complete	2011-08		SGIP	
S	T#	PAP Work Tasks	Due	Actual	Resp	D#
✓	T1	Create a proposed outline for a new scoping document.	Jan-2010	Jan-2010	Ron Farquharson	D2
✓	T2	Create data flow diagrams	Mar-2010	Mar-2010	Grant Gilchrist	D1
✓	T3	Create drafts of the use case description based on the topology diagrams	Apr-2010	Apr-2010	Grant Gilchrist	D3
✓	T4	Support IEEE PES Substations WG-C12 with IEEE P1815 - new IEEE standard for DNP	May-2010	May-2010	Ron Farquharson, Lee Smith, Parker McCauley	D6
✓	T5	Define what key data types are required for SCADA	May-2010	May-2010	Rick Murphy	D7
✓	T6	Modify existing	Apr-2010	Apr-2010	Rick Murphy	D1

		architecture diagrams to add DNP to field devices, electronic security perimeter				
✓	T7	Locate example mappings (existing products) for DNP3 to IEC61850	October-2010	Oct-2010	Parker McCauley	D10
✓	T8	Finalize outline for the IEC 61850-80-2 Technical Report (Mapping DNP with 61850)	September-2010	Sept-2010	Grant Gilchrist / Christoph Brunner	D6
🟢	T9	Finalize outline for the (DNP Technical Committee sponsored) guideline for mapping DNP3 with IEC 61850.	December-2010		Rick Murphy	D7
🟢	T10	Develop PAR for new IEEE standard	November-2010		Lee Smith / Ron Farquharson	D11
🟢	T11	Develop draft IEEE mapping specification for review by IEEE C12 working group	December 2010		NIST Contractor (ESTA/Quanta)	D12
🟢	T10	Develop the New Work Item Proposal for the IEC 61850-80-2	June-2011		Christoph Brunner	D5

	technical specification.				
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Status	Schedule	Deliverables	Resources
January 2010			
February 2010			
March 2010			
April 2010			
May 2010			
June 2010			
July 2010			
August 2010			
September 2010			
October 2010			

Status of PAP13: Harmonization of IEEE C37.118 with IEC 61850 and Precision Time Synchronization

Updated October 28, 2010.

A#	Current Activities and Accomplishments	S	D#	Deliverable
A1	New NIST contractor has commenced work and is in the process of clarifying scope and tasks for PAP-13	✓	D1	Harmonization use cases and requirements
A2	PAP-13 leadership is working closely with NIST project leader and the contractor to coordinate the work.	✓	D2	C37.118 Enhancement (gaps) List
A3	The PAP-13 group has reviewed the full draft of the IEC 61850-90-5 technical report which has been released for comments.	✓	D3	IEC 61850-90-5 Mapping document
A4	IEC WG-10 met in Moscow on October 4 and review about 80 comments on the 90-5 document. Feedback on the document is generally positive with the exception of the cyber security areas.	✓	D4	1588 Time Sync Demo
A5	Have started coordination with Darren Highfill of UtiliSec . The ASAP-SG group is planning to develop a cyber security profile for phasor data and is coordinating with the SGIP-CSWG .	✓	D5	1588 Power Profile is IEEE PC37.238
A6	Working group IEEE PSRC H7/C7 - IEEE PC37.238 (Power Profile for IEEE 1588) have established the ballot pool with voting on the standard to be completed in November.	✓	D6	Amendments to IEC 61850 documents
A7	Comments from the IEC have been received regarding IEEE PC37.238 (Power Profile for IEEE 1588). A dual logo standard is expected.	✓	D7	Amendments to IEEE C37.118 document(s)
A8	Developing a detailed document to clarify and drive agreement on which phasor communications related requirements are (or should be) addressed by which standard (C37.118 and IEC 61850)	✓	D8	Guideline for Harmonizing C37.118-2005 with IEC 61850

I#	Issues, Concerns & Help Needed	S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
		✓	TPMO1	PAP Initiation	2009-09	2009-09	SGIP	
		✓	TPMO2	PAP Charter Developed	2009-11	2009-11	SGIP	
		✓	TPMO3	Form Initial Team	2009-11	2009-11	SGIP	
		✓	TPMO4	Develop List of Deliverables and Tasks with Assignments	2009-12	2009-12	SGIP	
		✓	TPMO5	SSO Identified	2009-11	2009-11	SGIP	
		✓	TPMO6	Development of Requirements By PAPWG	2010-06	2010-06	SGIP	

✓	TPMO7	Requirements Handoff to SSO	2010-09	2010-10	SGIP	
	TPMO8	Standards Handback to PAPWG from SSO	2011-04		SSO	D3, D5 - D8
	TPMO9	SSO Results submitted to GB by PAP after completing analysis	2011-05		SGIP	
	TPM10	PAP Complete	2011-06		SGIP	

S	T#	PAP Work Tasks	Due	Actual	Resp	D#
✓	T1	Requirements document for Synchrophasors	Sep-2009	Oct-2009	Mark Adamiak	D1
✓	T2	Create outline for IEC mapping document (IEC 61850-90-5)	June-2010	June-2010	HTF3 - Joint IEEE/IEC	D3
✓	T3	Create the draft IEC mapping document (90-5)	Sep-2010	July-2010	IEC WG10	D3
🟡	T4	IEEE PSRC H7 - Power Profile for IEEE 1588 - sponsor ballot	Nov-2010		IEEE H7/C7	D5
✓	T5	Interop demo 1588	Jan-2010	Jan 2010	IEEE H7/C7	D4
🟡	T6	Validate time synchronization requirements for testing	Jan-2011		NIST Contractor	D5
✓	T7	Differences in time stamps C37.118 / IEC 61850	Sep-2010	Oct-2010	IEEE H7 / TC57/WG10	D3
🟡	T8	Amendments to IEC 61850	Jan-2011		TC57/WG10	D6
🟡	T9	NIST Testbed for 1588 - Requirements	Jan-2011		NIST Contractor	D5
✓	T10	Create a list of enhancements and gaps for C37.118-2005	May-2010	May-2010	Mark Adamiak	D2, D7
🟡	T11	Outline for the Guideline for Harmonizing C37.118-2005 with IEC 61850	Dec-2010		NIST Contractor	D8

Status	Schedule	Deliverables	Resources
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January 2010			
February 2010			
March 2010			
April 2010			
May 2010			
June 2010			
July 2010			
August 2010			
September 2010			
October 2010			





Status of PAP14: Transmission and Distribution Power Systems Model Mapping (11.2.1)


















Updated November 8, 2010.

A#	Current Activities and Accomplishments	S	D#	Deliverable
A3	Currently rescoping to focus on mainly Transmission topics	✓	D1	Report on the impact of C37.239 on CIM and IEC 61850
A4	Use Cases for Advanced Distribution will be tied in to Transmission touch points	✓	D2	A master list of use cases (task 6)
A6	Reviewing prior work for most valuable use cases to advance modeling	●	D3	New and refined use cases (task 7)
A8	Executing a priority process to narrow and define key use cases for this PAP	●	D4	Updates of models (task 7)

I#	Issues, Concerns & Help Needed	S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
I0	Now working on a priority process to effectively rescope PAP	✓	TPMO1	PAP Initiation	2009-09	2009-09	SGIP	
I1	Work requires specialized expertise from participants within the key SDOs IEEE PSRC and IEC TC 57	✓	TPMO2	PAP Charter Developed	2009-09	2009-09	SGIP	
I3	Need focussed work on the next generation T&D operations Architecture Perspective	✓	TPMO3	Form Initial Team	2009-09	2010-03	SGIP	
I4	Need expert help in developing identified use cases in sufficient detail to contribute to standards development	✓	TPMO4	Develop List of Deliverables and Tasks with Assignments	2010-03	2010-06	SGIP	
I5	Need to apply expert help in harmonization, integration and unification of key standards	✓	TPMO5	SSO Identified	2010-01	2010-01	WG19	
		●	TPMO6	Development of Requirements By PAPWG	2010-08			
		●	TPMO7	Requirements Handoff to SSO	2010-09			
			TPMO8	Standards Handback to PAPWG from SSO	2010-11			
			TPMO9	SSO Results submitted to GB by PAP after completing analysis				
			TPM10	PAP Complete				

S	T#	PAP Work Tasks	Due	Actual	Resp	D#
✓	T1	Investigating impact of IEEE PC37.239	Dec-2009	May 2010	Hughes	D1
✓	T2	In the process of creating team to identify Use Cases	April-2010	May 2010	Hughes	D2
✓	T3	Creating initial use case team – T&D DEWG	Sep-2009	March-2010	Hughes	D2
✓	T4	Creating use case master list	Dec-2009	July-2010	WG 19	D2

	T8 Prioritizing Use Cases for Most Critical Needs	Dec-2010		IEEE, IEC, T&D DEWG	D5
	T5 Refining use cases	Jun-2010		WG 19	D3
	T6 Reviewing and assigning use cases – WG19 Smart Grid TF to review and assign to other TF's	May-2010			D3
	T7 Develop contributions to communication objects and system models	Dec-2010			D4

Status	Schedule	Deliverables	Resources
January 2010			
February 2010			
March 2010			
April 2010			
May 2010			
June 2010			
July 2010			
Aug 2010			
Sept 2010			
Oct 2010			

Status of PAP15: Harmonize Power Line Carrier Standards for Appliance Communications in the Home


Updated Nov 12, 2010.

A#	Current Activities and Accomplishments	S	D#	Deliverable
A5	Harmonization of G.hn and P1901 ISP completed. G.hn approved as G.9972 and P1901 ISP became part of P1901. Handling feedback on report.	✓	D1	Final Task 1 Deliverable and supporting documents
		✓	D2	Final Task 2 Deliverable
		✓	D3	Intermediate reports available NB coexistence mechanism
A6	Stakeholder presentations from AHAM and OpenSG requirements sources.	✓	D4	Harmonized BB Coexistence standards, P1901, G.9972, standards available from IEEE, ITU-T
A7	Developing appliance centered NB-PLC requirements with input from AHAM and OpenSG / Communications. Formalizing report.	✓	D5	Announcement of joint IEEE ITU-T work on NB standard.doc
		🟡	D6	Development of output report on Broadband Coexistence
		🟢	D7	Requirements for Joint NB PLC standard
		🟢	D8	Interoperable Joint NB PLC Standard

I#	Issues, Concerns & Help Needed	S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
I4	Time to review NB-PLC requirements is short.	✓	TPMO1	PAP Initiation	2009-10	2009-10	SGiP	All
		✓	TPMO2	PAP Charter Developed	2009-11	2009-11	SGiP	All
		✓	TPMO3	Form Initial Team	2010-01	1020-01	SGiP	All
		✓	TPMO4	Develop List of Deliverable and Tasks with Assignments	2010-01	2010-01	SGiP	All
		✓	TPMO5	Work with SDOs to harmonize BB PLC Coexistence standards	2010-06	2010-06	IEEE,ITU-T	All
		✓	TPMO6	Identify SDOs for NB PLC coexistence standard	2010-07	2010-08	SGiP	
		🟢	TPMO7	Development of Requirements for NB PLC By PAPWG	2010-11		SGiP	
		🟢	TPMO8	Requirements for NB PLC Handoff to SDO	2010-11		SGiP	
		🟢	TPMO9	Standards Handback to PAPWG from SDO	2011-??		IEEE,ITU-T	
		🟢	TPM10	SSO Results submitted to GB by PAP after completing analysis				
		🟢	TPM11	PAP Complete				

S	T#	PAP Work Tasks	Due	Actual	Resp	D#
✓	T1	Create a list of existing PLC technologies	March 23rd, 2010	March 23rd, 2010	Subgroup on coexistence	D1-Final deliverable posted

		and revise them according to home appliances requirements				
✓	T2	Create a list of existing coexistence mechanisms and revise them according to home appliances requirements	March 23rd, 2010	April 13th, 2010	Subgroup on coexistence	D2-Final deliverable posted
✓	T3	Harmonize coexistence standards if multiple candidates are found	IEEE and ITU finalize the alignment of the BB-PLC coexistence specs	June 2010	BB Task Force of Subgroup on coexistence	D4-Work completed, BB coexistence standards approved by ITU-t and IEEE in June 2010.
✓	T4	Develop Narrow Band (NB) Coexistence mechanism	April 2010	April 27, 2010	NB Task Force of Subgroup on coexistence	D3-Report delivered,
🔴	T5	Select an SDO to develop NB Coexistence standard	June 2010		Subgroup on coexistence	Voting postponed, July 27, await joint SDO proposal, D5-IEEE, ITU-T joint announcement delivered. (this task may be deleted or completed based on changes in direction)
🟢	T6	Develop Appliance Centered NB-PLC Requirements	November 2010		PAP-15 - Requirements	D7

	T7 IEEE and ITU-T to jointly develop a NB PLC standard	TBD				D8-standard specification
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Status	Schedule	Deliverables	Resources
January 2010			
February 2010			
March 2010			
April 2010			
May 2010			
June 2010			
July 2010			
August 2010			
September 2010			
October 2010			
November 2010			

Status of PAP16: Wind Plant Communications

Updated November 12, 2010.

A# Current Activities and Accomplishments		S	D#	Deliverable		
A1	Requirements mapped to E61400-25	✓	D1	Requirements related to wind power plant communications from use cases		
A2	Gaps identified, identifying recommendations	✓	D2	Requirements mapping and gaps existing between 61400-25 standard and Task 1 use cases		
A3	NIST letter to IEC SG3 sent		D3	Best practices on the application of 61400-25 in the US		
A4	Recommendations to IEC being written		D4	Specific recommendations to the IEC TC 88 working group		
A5	Contacted TC88 and SG3 at IEC to start the process					
A6	Added the NERC document on variable generation to the D3 list					

I#	Issues, Concerns & Help Needed					





S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
✓	TPMO1	PAP Initiation	2010-01	2010-01	SGIP	
✓	TPMO2	PAP Charter Developed	2010-02	2010-02	SGIP	
✓	TPMO3	Form Initial Team	2010-03	2010-03	SGIP	
✓	TPMO4	Develop List of Deliverables and Tasks with Assignments	2010-04	2010-04	SGIP	D1
✓	TPMO5	SSO Identified	2010-02	2010-08-05	PAP16wg	D1
✓	TPMO6	Development of Requirements By PAP 16 WG	2010-09	2010-09-30	PAP16wg	D2,D3
⚠	TPMO7	Requirements Handoff to SSO	2010-10	MT25 being formed	PAP16wg	D4
🔄	TPMO8	Standards Handback to PAPWG from SSO	2011-07		SSO	
🔄	TPMO9	SSO Results submitted to GB by PAP after completing analysis	2011-08		PAP16wg	








	TPM10	PAP Complete	2011-11		PAP16wg	
S	T#	PAP Work Tasks	Due	Actual	Resp	D#
	T1	Develop requirements related to wind power plant communications from use cases	June-2010	June-2010	UWIG et al	D1
	T2A	Map the requirements of task 1 into 61400-25.	July-2010	August 2010	PAP 16/61400-25 User Group	D2
	T2B	Identify Gaps and develop recommendatios.	September 2010	September 2010	PAP 16	D2
	T3	Develop a best practices list for the application of 61400-25. Identify opportunities to harmonize the CIM and 61400-25	December-2010		UWIG/All	D3
	T4	Provide specific recommendations to IEC TC 88 through USTAG for 61400-25 and follow-up	November-2010		All/UWIG/61400-25 User Group	D4
	T5	Coordinate with PAP 7 in extending ES-DER standards to transmission level	September -2010	September 2010	PAP 16 / PAP 7	D4

Status	Schedule	Deliverables	Resources
August 2010			
September 2010			
October 2010			
November 2010			

Status of PAP17: Facility Smart Grid Information Standard

Updated November 5, 2010.

A#	Current Activities and Accomplishments	S	D#	Deliverables
A1	SGIPGB established PAP17		D1	Use Cases and Requirements
A2	ASHRAE has finalized their committee 8/9/2010, VotingMembers		D2	Information Models
A3	ASHRAE SPC held first meeting 8/30-3/31, created five sub groups to tackle important issues, ASHRAE Information		D3	Draft Standard
A4	PAP17WG had their kickoff Webmeeting on 9/8/2010		D4	Published Standard
A5	PAP17WG had their kickoff F2F meeting on 9/16/2010			
A6	The PAP17WG evaluated the cross-PAP dependency matrix and tasked members to evaluate the dependencies and report back to the group			
A7	A Use Case team was formed to evaluate the submission by the EIS Alliance (see Deliverable 1)			
A8	The PAP17WG completed its evaluation of the EIS Alliance use cases for consideration in PAP17WG work on 10/06/2010.			
A9	The PAP17WG and ASHRAE SPC201 Use Case WG held a combined work session on 11/3/2010 to review the data objects in the EIS Alliance use cases. The two use case teams will also be evaluating use cases from PAP07WG and the EPRI IntelliGrid efforts.			

I#	Issues, Concerns & Help Needed	S	T#	PMO PAP Milestones	Due	Actual	Resp	D#
I1	Need to sort out sharing of information between ASHRAE and PAP17WG -resolved		TPMO1	PAP Initiation	2010-07	2010-07	SGIP	
I2	Need to sort out contributor intellectual property concerns w.r.t. use cases-resolved		TPMO2	PAP Charter Developed	2010-07	2010-07	SGIP	
I3	Difference between ASHRAE voting members and guest participants and information availability-resolved		TPMO3	Form Initial Team	2010-09	2010-09	SGIP	
I4	Use Case <i>selection</i> may end up being Use Case <i>creation</i> which will take a bit more time; 9/20 update: EIS Alliance submitted use cases to seed the work.-resolved		TPMO4	Develop List of Deliverables and Tasks with Assignments	2010-07	2010-07	SGIP	
			TPMO5	SSO Identified	2010-07	2010-07	PAP17WG	
			TPMO6	Development of Requirements By PAPWG	2010-10		PAP17WG	D1
			TPMO7	Requirements Handoff to SSO	2010-10		PAP17WG	D1

Date not finalized	TPMO8	Standards Handback to PAPWG from SSO	2011-06		ASHRAE	D3
Date not finalized	TPMO9	SSO Results submitted to GB by PAP after completing analysis	2011-07		PAP17WG	D4
	TPM10	PAP Complete	2011-07		PAP17WG	
S	T#	PAP Work Tasks	Due	Actual	Resp	D#
✓	T1	Form ASHRAE Standard Project Committee (SPC) to execute the tasks from this PAP	2010-07	2010-07	ASHRAE	D1
●	T2	Assemble data requirements from existing use cases referenced above	2010-10		ASHRAE	D2
Date not finalized	T3	Initiate public review of draft Facility Smart Grid Information Standard	2011-01		ASHRAE	D3
Date not finalized	T4	Publication of final Facility Smart Grid Information Standard	2011-06		ASHRAE	D4

Status	Schedule	Deliverables	Resources
August 2010	●	●	●
September 2010	●	●	●
October 2010	●	●	●
November 2010	●	●	●

